

REMARKS

Applicant has thoroughly considered the Examiner's remarks and the application has been amended in light thereof. Claims 1-49 are presented in the application for further examination. By this Amendment A, claims 1, 16, 20, 35 and 46 have been amended, and new claims 50-53 have been added. Reconsideration of the application and claims as amended and in view of the following remarks is respectfully requested. The following remarks will follow the sequence of the Office Action.

Specification Objections

The specification stands objected to because of informalities in the detailed description as listed on page 2 of the Office action dated June 28, 2004. On page 12, line 9 the reference numeral for low tractive effort has been amended to refer to reference character "1102," and the reference numeral for the dispensing of the application agent has been amended to refer to 1120 in Fig. 11. On page 13, line 12, the reference numeral for effectiveness detection has been amended to refer to reference character "1210" in Fig. 12. Thus, applicant requests that the Examiner withdraw the objections to the specification.

Drawing Objections

The drawings stand objected to for failing to comply with 37 CFR 1.84(p)(4) because the reference character "1114" has been used to designate both the consist/train information and the step to dispense friction enhancing material. Applicant has submitted a replacement drawing sheet for Fig. 11 where the reference character "1114" designates the consist/train information and the reference character "1120" designates the step to dispense friction enhancing material. Thus, Applicant submits that the drawings are now in compliance with 37 CFR 1.84(p)(4) and the objection may be withdrawn.

The drawings also stand objected to for failing to comply with 37 CFR 1.84(p)(5) because the reference character "1210" was not mentioned in the description. As discussed above, the specification has been amended to refer to reference character "1210" and thus, Applicant submits that the drawings are now in compliance with 37 CFR 1.84(p)(5) and the objection may be withdrawn.

Claim Objections

Method claim 46 stands objected to because it is shown to depend from apparatus claim 10. Claim 46 has been amended to depend from method claim 42. As such, the objection to claim 46 should be withdrawn.

Claim Rejections under 35 U.S.C. 102(b)

Claims 1, 3-15, 16, 17, 19, 20, 23-38, 40, and 42-49 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,276,281 to Mesalic et al (Mesalic). A claim is anticipated only if each and every element as set forth in the claim is disclosed, either expressly or inherently in a single prior art reference. Verdegai Bros. v. Union Oil. Of California, 814 F.2d 628, 631 (Fed. Cir. 1987). Applicant submits that each and every element as set forth in the recited claims is not found, either expressly or inherently, in Mesalic. Thus, the cited reference does not anticipate the claims.

Mesalic discloses a system for clearing a railroad track of contaminants, such as snow and other contaminants. In particular, Mesalic discloses a track cleaning system that uses a single cleaning agent, compressed air, for clearing or removing contaminants from the rails of a railroad track. The Examiner asserts that Mesalic discloses a friction management system and method for operating a railway train and for managing and controlling the application of a friction modifying element to an area of contact between the rails and the wheels of the rail car. (See Office action at page 4). However, the focus of Mesalic is a system for directing air toward the rail to remove or clear contaminants from the rail. Applicant, on the other hand, has disclosed a system that determines "the type, timing and quantity of the friction modifying agent to be applied." (See Application, page 8, paragraph 36). For example, "a controller obtains consist or train data related to the weight of the consist, the train configuration length, an inertia estimate of the train, and the rail condition. The controller 606 then determines whether friction modifying agents 612 should be applied to the rail, where to apply the agents 612, which applicators 610 to activate for applying the agents 612, which agents 612 should be applied and the quantity or dispensation rate 1112 of agents 612 to be applied." (See Application, page 12, paragraph 45). In addition, the controller may instruct one or more applicators to apply desired agents due to the need to increase the actual tractive effort to match a desired tractive effort, and once the desired tractive

effort is obtained in the process ends. (See Application, page 12, paragraph 45.) In other words, applicant's invention determines the type of agent, amount of agent, and/or when to start and end the process of adding a selected type agent to the rail.

To this end, amended claim 1 recites, in part, a system for managing and controlling an application of a friction modifying agent to a rail that includes sensors for detecting parameters relating to an operation of the railway train, a controller responsive to the sensed parameters for *selecting at least one type of friction modifying agent* and for *determining a period of time for application of the selected friction modifying agent* to the rail, both as a function of the detected parameter.

Mesalic does not disclose selecting the type of friction modifying agent to apply to the rail, or *determining the period of time for application (e.g., when to begin and end application) of the selected friction modifying agent*. Consequently, Mesalic cannot anticipate each and every element as set forth in claims 1.

Claim 20 recites "at least one controller responsive to input from at least one of [a] plurality of sensors for *selecting at least one type of friction modifying agent as a function of the detected parameter* and *determining an amount of the selected friction modifying agent to apply* to the rail as a function of at least one of the sensed parameters." Again, Mesalic does not disclose selecting the type of friction modifying agent to apply to the rail nor does this reference teach or suggest *determining the amount of the selected friction modifying agent to apply to the rail* as a function of a sensed parameter. For example, applicant teaches that the amount of friction modifying agent applied by an applicator may be optimized based on the length of the train. (See Application, page 8, paragraph 34.) On the other hand, Mesalic discloses that the controller outputs an "On/Off output" that "instructs the compressed air system to activate the rail cleaning operation." (Mesalic, column 3, lines 47-50.) In other words, Mesalic teaches that the controller only activates a track cleaning system (i.e., turns it on or off) and that the system does not control the amount of the cleaning agent, compressed air. Consequently, Mesalic cannot anticipate each and every element as set forth in claim 20.

For substantially the same reasons that Mesalic fails to teach each and every element of claims 1 and 20, it also fails to teach each and every element of claims 16 and 35. As amended, claims 16 and 35 recite a method for managing and controlling an application of a friction

modifying agent to an area of contact between railway wheel of a railway train and railway rail that includes selecting the "*the type of friction modifying agent as a function of [a] sensed parameter.*" Again, the Mesalic patent is completely silent as to selecting the type of friction modifying agent that is applied to the rail as a function of the sensed parameter. Thus, the Mesalic patent fails to teach every element as set forth in amended claim 16 and 35, and Applicant respectfully requests that the Examiner withdraw the rejection of claims 16 and 35 based on this reference. Claims 17-19 depend from claim 16 and are allowable for at least the same reasons as claim 16. Claims 36-49 depend from claim 35 and are allowable for at least the same reasons as claim 35.

In addition, claims 12 and 31 recite an applicator "wherein the applicator is configured to apply the friction modifying agent to a defined point" and the controller "controls the application of the *friction modifying agent to the defined point* of rail configuration." Applicant discloses that the applicators are enabled to apply friction modifying agents to defined points of application. (See Application, page 8, paragraph 36.) Additionally, applicant discloses several examples of these defined points, such as "the wheel flange, the wheel rim, the top of the rail (TOR), and/or to the rail gage side (RAGS)." (Application, page 8, paragraph 36). Applicant further teaches that the "controller determines the point of application". (Application, page 9, paragraph 36.) Mesalic, on the other hand, teaches a system where the applicators are positioned on a fixed location on the locomotive with respect to the rail. (See Mesalic, column 6, lines. 28-30.) Conclusively, Fig. 1 of the Mesalic patent shows that the truck subsystem 18 (mounting and positioning of applicators) is not controlled by the rail cleaning system. Additionally, contrary to 37 C.F.R. 1.104(c)(2)¹, the Examiner has failed to offer any explanation of how the cited reference anticipates a controller that controls the application of a friction reducing agent to the defined point of rail configuration as recited by claims 12 and 31.

Claims 15 and 34 recite systems "wherein the controller determines *the quantity of the application of a friction modifying agent* by the applicator." Claims 17, 37 and 38 recite methods where the controller determines "*the quantity of the application of a friction modifying agent by the applicator.*" As discussed above, the system disclosed by Mesalic does not control

¹ "The pertinence of each reference, if not apparent, must be clearly explained ..." 37 C.F.R. 1.104(c)(2).

the amount of the cleaning agent. Thus, Mesalic does not anticipate a system or method that determines the quantity of the application of a friction modifying agent by the applicator as described in the present application and recited by claims 15, 17, 34, 37 and 38.

Rejections based on 35 U.S.C 103 (a)

Claims 2, 18, 21, 22, 39, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mesalic in view of U.S. Patent No. 5,896,947 to Kumar (Kumar). The Examiner asserts that Mesalic discloses a system and method for applying a friction modifying agent to a rail, but acknowledges that Mesalic fails to teach the placement of applicators before and after the specific cars. To remedy this deficiency, however, the Examiner asserts that Kumar discloses a friction modifying system where applicators are placed ahead of the front wheels and behind the rear wheels of the plurality of locomotives on the train. (See Office action at page 5.) Notwithstanding the Examiner's statements, applicant hereby submits that Kumar does not remedy the deficiencies of Mesalic. As discussed above, the focus of the Mesalic patent is directing a single cleaning agent, compressed air, toward the rail to remove or clear contaminants from the rail, and does not teach or suggest selectively controlling the application of one or more of a plurality of types of the friction modifying agents to the rail as recited in claims 1, 16, 20 and 35.

The Kumar patent discloses a system for applying a lubricant to the top of a rail, and applying another lubricant to the gage side of the rail. More specifically, Kumar discloses that a device at the front end of the locomotive lubricates the rail gage side, and that a device at the rear end lubricates the top of both rails. (See Kumar, column 2, lines 52-56.) However, Kumar does not disclose a controller that is responsive to a sensed parameter for: (1) selecting the type of friction modifying agent to apply to the rail; (2) determining a period of time for application of the selected friction modifying agent to the rail; and (3) determining an amount of the selected friction modifying agent to apply the rail. Thus, whether Mesalic and Kumar are considered alone or in combination, they fail to teach or suggest each and every element of claims 1, 16, 20 and 35. As such, claims 1, 16, 20 and 35 are not obvious in view of Mesalic and Kumar and are allowable over these references. Thus, claims 2, 18, 21, 22, 39, 41, 50, 51, 52 are allowable for the same reasons as the claims from which they depend.

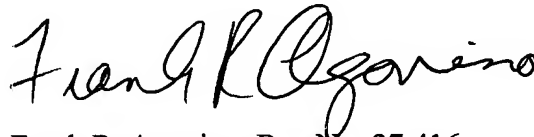
New claim 50 recites, in part, a controller responsive to a sensor for determining whether to apply a friction enhancing agent or a friction diminishing agent friction on the rail and for determining an amount of the determined agent to apply to the rail, both as a function of a sensed parameter. Mesalic and Kumar fail to teach or suggest determining whether to apply a friction modifying agent that enhances friction or that diminishes friction based on a sensed parameter. As such, new claim 50 is believed to be allowable over the cited references.

CONCLUSION

It is felt that a full and complete response has been made to the Office Action and, as such, places the application in condition for allowance. Such allowance is hereby respectfully requested. If the Examiner feels, for any reason, that a personal interview will expedite the prosecution of this application, he is invited to telephone the undersigned.

The Commissioner is hereby authorized to charge \$110 for a one (1) month extension of time up to and including today's date to Deposit Account No. 07-0846.

Respectfully submitted,



Frank R. Agovino, Reg No. 27,416
SENNIGER, POWERS, LEAVITT & ROEDEL
One Metropolitan Square, 16th Floor
St. Louis, Missouri 63102
(314) 231-5400

ROE/jjd

AMENDMENTS TO THE DRAWINGS

Applicant files herewith one (1) sheet of corrected drawings to replace drawing sheet 9/10 now on file in the above-entitled application, and one (1) annotated sheets with changes to FIG. 11 shown in red ink. In FIG. 11, the reference character corresponding to the "Dispense Friction Enhancing Material" block has been changed from "1114" to "1120."

Attachments: Replacement Sheet
Annotated Sheet

